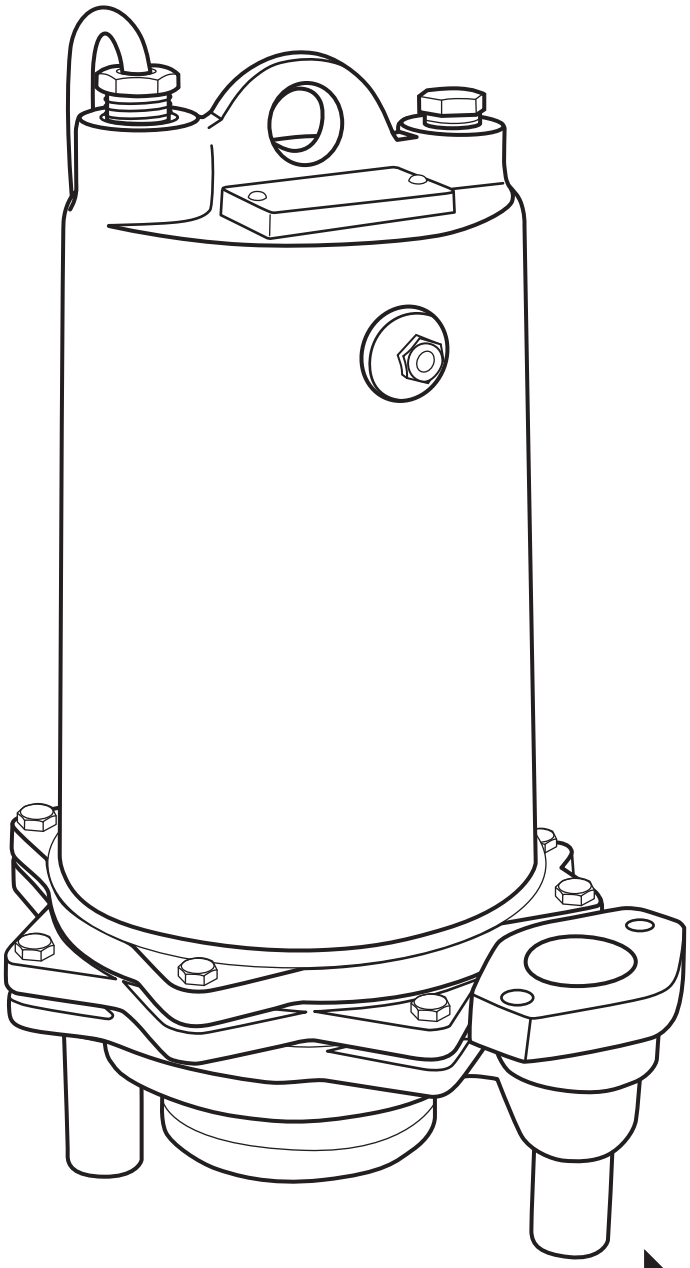
HYDROMATIC®

HGRS200

Submersible Grinder Pump



NOTE! To the installer: Please make sure you provide this manual to the owner of the pumping equipment or to the responsible party who maintains the system.

Pentair Water™

General Information

Thank you for purchasing your Hydromatic® pump. To help ensure years of trouble-free operation, please read the following manual carefully.

Before Operation:
Read the following instructions carefully. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

Attention:

This manual contains important information for the safe use of this product. Read this manual completely before using this product and refer to it often for continued safe product use. DO NOT THROW AWAY OR LOSE THIS MANUAL. Keep it in a safe place so that you may refer to it often.

WARNING: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

Pump Cautions and Warnings

To reduce risk of electrical shock:

1. **Risk of Electrical Shock:**
   This pump has not been investigated for use in swimming pool areas.
2. **Risk of Electrical Shock:**
   Connect only to a properly grounded receptacle. Septic tank to be vented in accordance with local plumbing codes.

   Do not smoke or use sparkable electrical devices or flame in a septic (gaseous) or possible septic sump.

   If a septic sump condition may exist and if entry into sump is necessary, then (1) provide proper safety precautions per OSHA requirements and (2) do not enter sump until these precautions are strictly adhered to.

   Do not install pump in location classified as hazardous per N.E.C., ANSI/NFPA 70 - 2000.

   Failure to heed above cautions could result in injury or death.

1. *CAUTION* – To reduce risk of electrical shock, pull plug before servicing this pump.
2. *WARNING* – Risk of electrical shock. This pump has not been investigated for use in a swimming pool.
3. *WARNING* – See installation and service manual for proper installation.
4. *WARNING* – To reduce risk of electrical shock, pump is provided with grounding wire. Be certain that it is connected to ground.
5. *WARNING* – Hazardous moving parts. To reduce the risk of injury, disconnect power before servicing pump.
6. *CAUTION* – To reduce the risk of electrical shock, DO NOT remove cord or strain relief. DO NOT connect conduit to pump. Electrical installations shall be in accordance with the National Electrical Code and all applicable local codes and ordinances. This marking is required on 3-phase models only.
7. *CAUTION* – For use with maximum 140°F water.
8. *CAUTION* – Tank should be vented in accordance with local plumbing codes and should not be installed in locations classified as hazardous, in accordance with the National Electrical Code, ANSI/NFPA 70-1999.
9. *CAUTION* – Risk of electrical shock. Do not remove cord and strain relief. Do not connect conduit to pump.
10. *WARNING* – Severe injury may result from accidental contact with moving cutters. Keep clothing, hands and feet away from cutters any time power is connected to the pump.
11. *CAUTION* – Never work on pump with power on. Make sure that the ground wire is securely connected and that the unit is properly grounded in accordance with local codes.

Pump Installation

Installing Pump in Sump:

Before installing pump in sump, lay it on its side and rotate impeller. Impeller may be slightly stuck due to factory test water so it must be broken loose with a small bar or screwdriver in edge of vanes. The impeller should turn freely. Do not connect the power until after this test.

Clean all trash and sticks from sump and connect pump to piping.

A check valve must be installed on each pump.

Location:

If pumps are installed in an existing basin or concrete sump, the piping can either be connected permanently or rails and brackets can be furnished for mounting to walls of basin. In either case, be sure that the pumps are submerged in a vertical position. The complete factory-built packaged system is recommended for the most satisfactory installation and generally for the lowest cost where expensive installation labor is involved.

Making Electrical Connections:

All electrical wiring must be in accordance with local code, and only qualified electricians should make the installations. Complete wiring diagrams are included for use in making the installation. All wires should be checked for shorts to ground with an ohmmeter or Megger after the connections are made. This is important, as one grounded wire can cause considerable trouble.

Pump Operation

Starting the Pump:

WARNING: Severe injury may result from accidental contact with moving cutters. Keep clothing, hands and feet away from cutters any time power is connected to the pump.

To start the pump, perform the following steps in order:

1. Grinder pump is single phase; no rotation check is necessary.
2. Run water into sump until motor is covered.
3. Open gate valve in discharge line.
4. Turn pump on. If pump runs and sump liquid does not pump down, stop pump and close discharge gate valve. Then lift pump until sealing flange is open to vent off trapped air. Lower pump, open discharge valve, and start the pump again.
5. Level control should be set so that pump turns off when level is about 2 inches above inlet of pump suction and turns on when level is about 2 inches above motor.
6. If problems occur check power source. Make sure a separate supply line is available. Verify voltage supply.
7. Check resistance of windings. If not within guidelines, return pump to authorized Hydromatic service or repair center.

As the motors are oil filled, no lubrication or other maintenance is required. Pump should be checked every quarter for corrosion and wear.

Pump Servicing

Read the following instructions carefully before replacing any parts. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation. Only a competent electrician should make the installations.

CAUTION: Never work on pump with power on. Make sure that the ground wire is securely connected and that the unit is properly grounded in accordance with local codes.

CAUTION: Severe injury may result from accidental contact with moving cutters. Keep clothing, hands and feet away from cutters any time power is connected to the pump.

Replacing Grinder Parts:

If necessary to replace grinder parts because of wear or to inspect for clogging:

1. Close gate valve at pump discharge.
2. Turn off circuit breaker.

CAUTION: Never work on pump with power on. Be sure ground wire from pump is connected to a good ground such as a water pipe.

3. Remove pump from sump.
4. Unscrew screws (3) and remove cutter ring assembly. Stationary cutter (2) cannot be removed from volute.
5. Unscrew hex head cap screws (11) and remove volute case (1).
6. Radial cutter (6) is now exposed. If checking for clogging, it can now be cleaned without removing from the shaft.
7. If necessary to replace cutter, remove screw (5), washer (4), and radial cutter (6) from shaft. Radial cutter (6) and impeller (8) are screwed onto shaft. The thread is right-hand. Tap radial cutter (6) with plastic hammer if necessary to loosen. Unscrew impeller (8) from shaft in same manner as radial cutter (6).

8. Clean all parts thoroughly before proceeding with assembly.
9. Replace case. Replace cutter ring assembly (2). Screw down with screws (3).
10. Plug pump into power and operate for a few seconds only to ensure parts are not rubbing.

Replacing Seal:

1. Drain the oil from the pump by removing the fill plug (19) located on the side of the motor housing (10).
2. Remove the volute and cutters per the instructions listed under the replacing grinder parts section in this manual.
3. To remove the impeller (8), secure the shaft by a flat bladed screwdriver into slot on end of the shaft. Hold a wood block against the impeller vane and tap it with a hammer until it spins off.
4. Remove the seal (12) rotating elements by sliding the spring bellows off the shaft, then using two screwdrivers, slide the carbon seal assembly off by prying on the retaining ring.
5. Using a screwdriver, break the old stationary portion of the seal (12) to allow for removal.
6. Take the stationary portion of the new seal (12), and lube the rubber material with good quality dielectric oil. Press the stationary portion of the new seal into the seal/bearing plate (9).

CAUTION: Do not reuse old seal parts. Replace all parts with new. Mixing old and new parts could cause immediate seal failure.

7. Using a good quality dielectric oil, lube the rubber material on the carbon seal assembly (12) and press it on the shaft. Place the spring bellows on the shaft as removed.
8. Using a pressure gauge with a fill stem, pressurize the motor housing no more than 7 psig with dried air and check for leaks. If after several minutes the gauge reads the same, the seal is good and you can continue with assembly.

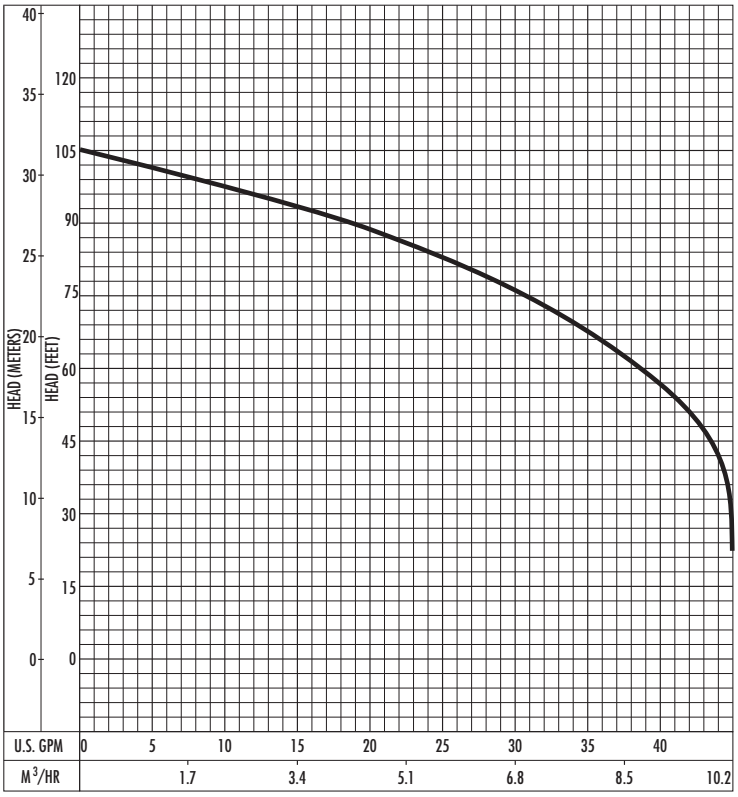
NOTE: It is normal to observe some air bubbles in the seal area initially as the seal seats. If bubbles do not stop within a few seconds, the seal is either not properly installed or is damaged.

9. Reassemble the cutter and volute as outlined in the replacing grinder parts section of this manual.
10. Refill motor housing with a good quality paraffinic oil (23). Fill the motor housing so that the tops of the motor windings have been covered, but leave an air gap to allow for expansion of the oil.

NOTE: When applying power, be sure the pump is restrained from turning by holding the pump at the motor housing, or by clamping it in a holding fixture.

WARNING: Severe injury may result from accidental contact with moving cutters. Keep clothing, hands and feet away from cutters any time power is connected to the pump.

PERFORMANCE CURVE



Pump Troubleshooting

Below is a list of troubles and their probable causes:

No liquid delivered

1. Pump airbound
2. Discharge head too high
3. Pump or piping plugged
4. Speed too low

Insufficient liquid delivered

1. Discharge head too high
2. Impeller or cutters partially plugged or damaged
3. Incorrect impeller diameter
4. Speed too low

Insufficient discharge pressure

1. Air or gases in liquid
2. Impeller damaged
3. Incorrect impeller diameter
4. Speed too low

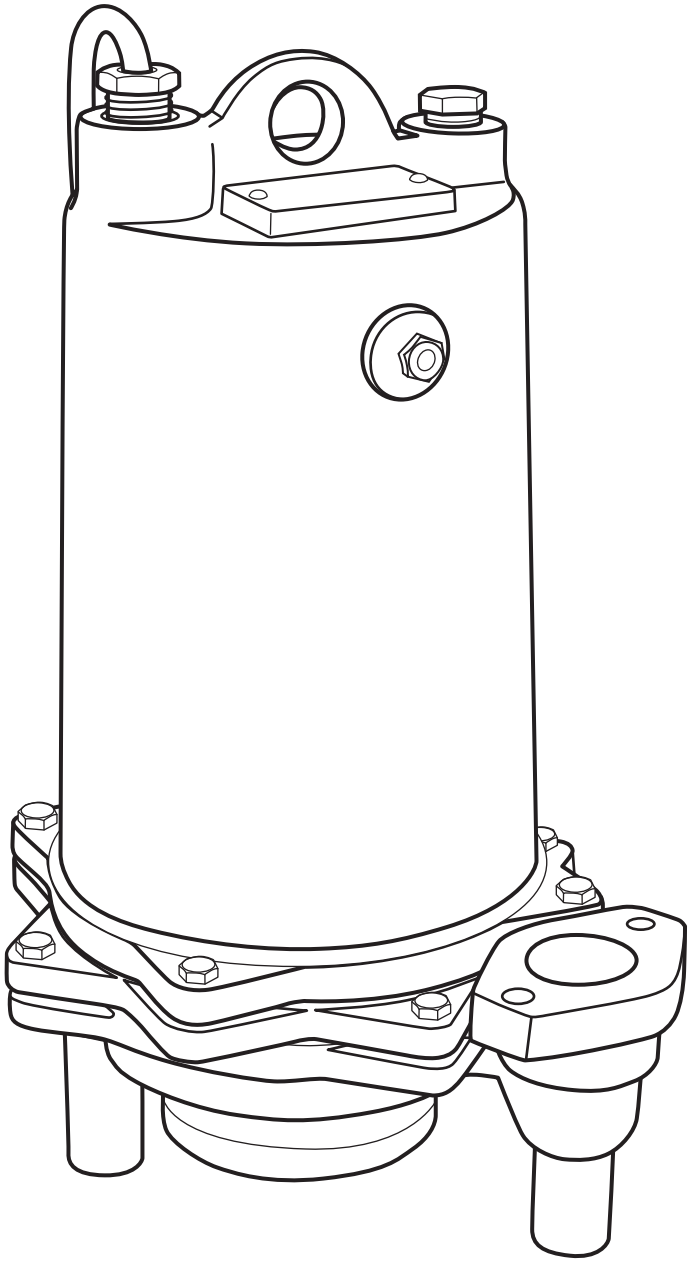
Pump overloads motor

1. Specific gravity or viscosity of liquid too high
2. Speed too high
3. Head lower than rating, pumping too much liquid
4. Pump clogged
5. Defective bearings
6. Defective impeller

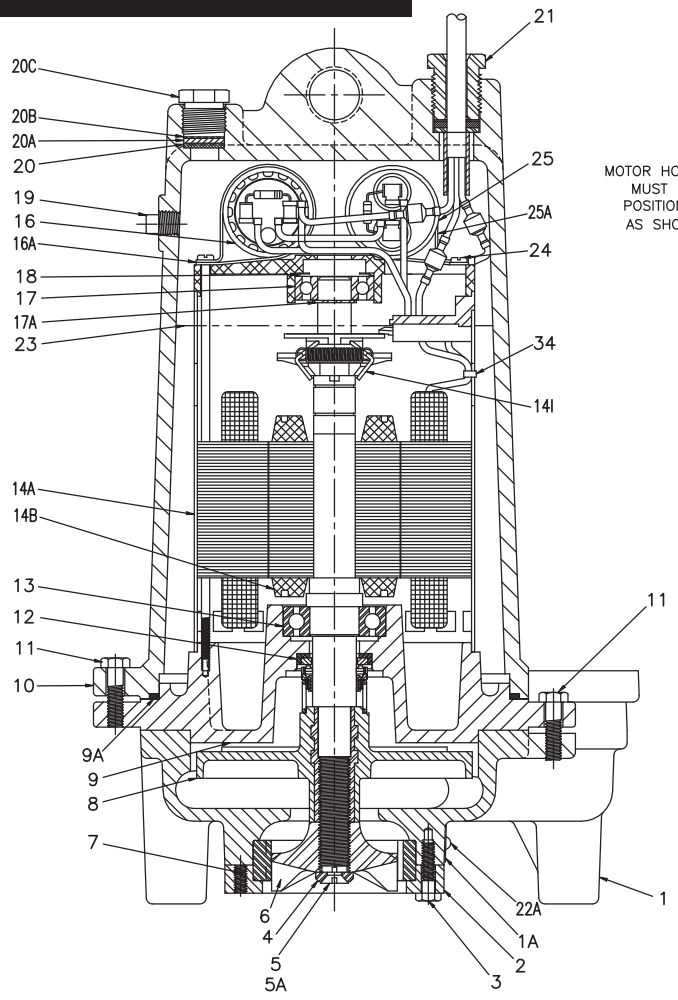
Pump is noisy

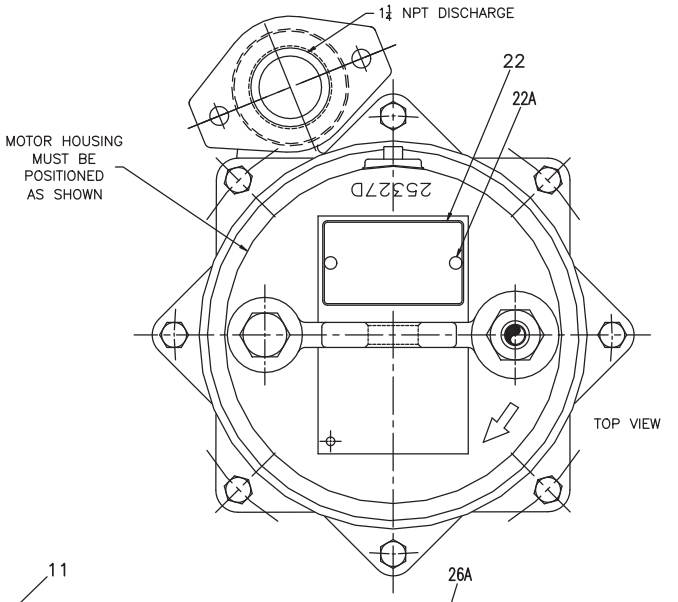
1. Defective bearings
2. No axial clearance between impeller and volute
3. No diametral clearance between radial cutter and cutter ring

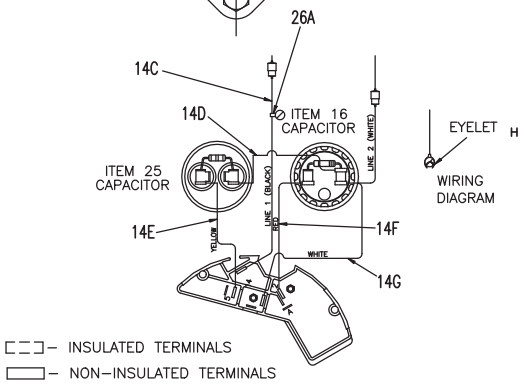
If the cause of the trouble cannot be determined and corrected as outlined above, contact your nearest factory representative.



HGRS200
Parts List







Ref. No.	Part No.	Description	Qty.
1	26433D002	CASE, VOLUTE; C.I. HGRS200 1-1/4 NPT DISCHARGE	1
1A	22084A000	PLATE; WARNING, GRINDER PUMP	1
2	21584B000	FLANGE; W/SHREDDING RING HGRS200	1
2	21584B003	FLANGE; W/SHREDDING RING HGRSH200	1
2	21584B004	FLANGE; W/SHREDDING RING HGRS200F	1
3	19099A012	SCREW; CAP HEX 1/4 SST 1 LG 20UNC	3
4	21583A000	RETAINER; IMPELLER SST	1
5	07597A018	SCREW; MACH FLT HD SKT SST 1/4-20-3A X 3/4LG	1
6	21582B000	IMPELLER; GRINDING SEWAGE GRINDER PUMP	1
7	05013A039	SCREW; SET HDLS HEX SST 1/4-20X3/8 CUP	2
8	26434C010	IMPELLER; PLASTIC HGRS200	1
8	26434C013	IMPELLER; CAST IRON HGRSH200	1
8	26434C060	IMPELLER; PLASTIC HGRS200F	1
9	26430D001	PLATE; SEAL & BEARING HGRS200 GRINDER PUMP	1
9A	05014A181	GASKET; RUBBER TETRASEAL 7X6 3/4X1/8	1
10	25327D000	HOUSING, MOTOR HGRS200	1
11	19100A012	SCREW – HHC 5/16-18UNC X 1-1/4	8
12	21576A010	SEAL; 7/8 SHAFT	1
13	08565A018	BEARING, BALL	1
14A	26466C101	STATOR; LONG SHELL 2 HP 230V	1
14B	26466C002	ROTOR; W/SHAFT FOR HGRS200 GRINDER PUMP	1
14C	09859A827	WIRE; W/TERMINALS 14GA BLACK 9 LG.	1
14D	09859A828	WIRE; W/TERMINALS 14GA BLACK 4-1/2 LG.	1
14E	09859A829	WIRE; W/TERMINALS 14GA YELLOW 4 LG.	1

Ref. No.	Part No.	Description	Qty.
14F	09859A830	WIRE; W/TERMINALS 14GA RED 3 LG.	1
14G	09859A831	WIRE; W/TERMINALS 14GA WHITE 8 LG.	1
14I	26466C003	SWITCH; CENTRIFUGAL MECH. FOR HGRS200	1
16	12141A015	CAPACITOR; START	1
16A	20333A001	CLIP; TUBE CAPACITOR MTG ST	1
17	08565A013	BEARING,BALL	1
17A	11816A006	RING; RETAINING	1
18	19331A005	WASHER; SPRING FINGER	1
19	05022A092	PLUG; PIPE ST GALV 1/4 HEX HD	2
20	05030A235	WASHER; SST 3/32" THICK	1
20A	05014A193	GASKET; RUBBER	1
20B	05030A234	WASHER; SST 1/32" THICK	1
20C	25341A002	NUT; CORD PLUG,SOLID	1
21	25338B001	CORD; POWER,ASSY,14/3 W/230V PLUG,20FT	1
22	27601A990	NAMEPLATE; 1 PHASE HYDROMATIC	1
22A	045800011	SCREW – DRIVE	4
23	24709110000	PARAFFINIC OIL	1
24	09822A032	SCREW; TAPPING SST 316 SST	2
25A	20333A004	CLIP; TUBE CAPACITOR MTG ST	1
25	23838A010	CAPACITOR; RUN	1
26A	17190A004	TIE; CABLE NYLON 1 MAX BUNDLE DIA	1
	12074A064	TERMINAL; INSULATED MALE	1

LIMITED PRODUCT WARRANTY

HYDROMATIC® warrants that its products are free from defects in material and workmanship for a period of twelve (12) months from the date of purchase or eighteen (18) months from the date of manufacture, whichever occurs first.

During the warranty period and subject to the conditions hereinafter set forth, **HYDROMATIC**, will repair or replace to the original user or consumer parts which prove defective due to defective materials or workmanship of **HYDROMATIC**. Contact the nearest authorized **HYDROMATIC** distributor, **HYDROMATIC** authorized service center or **HYDROMATIC** for warranty service. At all times, **HYDROMATIC** shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components.

Start up reports and electrical system schematics may be required to support warranty claims. Warranty is effective only if **HYDROMATIC** supplied or authorized control panels are used, where applicable. All dual seal pumps must have seal failure and heat sensors attached, functional and monitored for the warranty to be in effect. If a seal failure should occur, **HYDROMATIC** will only cover the lower seal and labor thereof. If the heat sensor and seal fail sensor is not attached and functional, the warranty is void.

LABOR, ETC. COSTS: HYDROMATIC shall in NO EVENT be responsible or liable for the cost of field labor, removal and/or reinstallation charges of any **HYDROMATIC** product, part or component thereof, or the expense of freight.

THIS WARRANTY WILL NOT APPLY: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; or (e) if the unit is moved from its original installation location; (f) unit is used for purposes other than for what it was designed and manufactured; (g) to any unit which has been repaired or altered by anyone other than **HYDROMATIC**, a **HYDROMATIC** distributor or a **HYDROMATIC** authorized service center and (h) to any unit which has been repaired using non factory specified parts/OEM parts.

RETURN OR REPLACED COMPONENTS: any item to be replaced under this Warranty must be returned to **HYDROMATIC** in Ashland, Ohio, or such other place as **HYDROMATIC** may designate, freight prepaid.

PRODUCT IMPROVEMENTS: HYDROMATIC reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such a change or improvement.

WARRANTY EXCLUSIONS: **HYDROMATIC** MAKES NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. **HYDROMATIC** SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.

Some states do not permit some or all of the above warranty limitations and, therefore, such limitations may not apply to you. No warranties or representations at any time made by any representatives of **HYDROMATIC** shall vary or expand the provision hereof.

LIABILITY LIMITATION: IN NO EVENT SHALL **HYDROMATIC** BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY **HYDROMATIC** PRODUCT OR PARTS THEREOF. PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY RESULT FROM IMPROPER INSTALLATION. **HYDROMATIC** DISCLAIMS ALL LIABILITY, INCLUDING LIABILITY UNDER THIS WARRANTY, FOR IMPROPER INSTALLATION — **HYDROMATIC** RECOMMENDS INSTALLATION BY PROFESSIONALS.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

In the absence of suitable proof of this purchase date, the effective date of this warranty will be based upon the date of manufacture.

HYDROMATIC®
Pentair Water

– Your Authorized Local Distributor –

USA
740 East 9th Street, Ashland, Ohio 44805
Tel: 419-289-3042 Fax: 419-281-4087

www.hydromatic.com

CANADA
269 Trillium Drive, Kitchener, Ontario, Canada N2G 4W5
Tel: 519-896-2163 Fax: 519-896-6337

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Part # 5625-499-1

Item # E-03-499 6/08

HYDROMATIC®
Pentair Water

START-UP REPORT

Distributor_____Order #: _____

Installing Contractor: _____ Phone: _____

Sales Contact: _____ Phone: _____

Customer & Location _____

1. SYSTEM INFORMATION

A. Size of wet well: _____ Manufacturer:_____
B. Discharge from bottom of basin: _____ Location:_____
C. Inlet from bottom of basin:_____ Location: _____
D. Type of check valves: _____
E. Type of piping _____
F. Does system have suction and discharge gauges? _____
G. Pressure reading? Suction_____ Discharge _____
H. Liquid being pumped:_____ Temperature: _____ % of solid: _____
I. Sketch or photograph of system attached? _____
J. Any additional comments on system: _____

_____

2. ELECTRICAL INFORMATION

A. Control panel part #:_____ Panel rated amps: _____
Manufacturer _____ Voltage: _____ Phase: _____
B. Heater size: _____
C. Location of panel to wet well: _____
D. Incoming line voltage: _____ Actual? _____
E. Voltage to pumps _____ Actual? _____
F. Type of junction box: _____ Manufacturer:_____
G. Are floats installed in wet well? _____
H. Are floats set to engineer's spec? _____
I. Are floats wired for proper sequencing? _____
J. Any additional comments on electrical: _____

_____

3. PUMP INFORMATION

A. Type of pump:_____ Serial # _____
B. Voltage:_____ Phase:_____ RPM:_____ Amps: _____
C. Impeller size: _____ C.O.S. TDH:_____ GPM: _____
D. Voltage supplied from panel:_____ Actual?: _____
E. Actual amperage (all phases): _____ amps _____amps _____amps
F. Have you checked pump rotation? _____
G. Any additional comments on pumps: _____

_____

Acknowledge that all information is accurate and proper procedures have been followed:

Customer Signature:_____ Date _____

Start-up Technician:_____ Date _____

Send to: Warranty Department, 740 E. Ninth Street, Ashland, OH 44805, Fax: 419-207-3344,
or e-mail to: startupreport@hydromatic.com

We will make this a permanent part of our file on this order.